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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/061,577	01/31/2002	Roland Green	700706.90068	9636

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EXAMINER

FORMAN, BETTY J

ART UNIT	PAPER NUMBER
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1634

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/061,577	GREEN ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 6-9 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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FINAL ACTION

Status of the Claims

1. This action is in response to papers filed 24 March 2004 in which claims 1, 2, and 6 were amended, claims 3-5 were canceled and claim 9 was added.

All of the amendments have been thoroughly reviewed and entered. The previous objections and rejections in the Office Action dated 29 September 2003 are withdrawn in view of the amendments. All of the arguments have been thoroughly reviewed but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection. New grounds for rejection, necessitated by amendment are discussed.

Claims 1, 2, 6 and 9 are under prosecution.

Specification

2. The previous objection to the specification is withdrawn in view of the amendment to page 4. The previous objection in the Office Action of 29 September 2003 incorrectly identified page 24 as describing figure 3. The specification at paragraph 24 describes figure 3.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 is indefinite for the recitation "the duty cycle" because the recitation lacks proper antecedent basis in the claim. It is suggested that the claim be amended to provide proper antecedent basis.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Garner (U.S. Patent No. 6,295,153, filed 4 June 1999), Baker et al (U.S. Patent No. 6,262,795, filed 28 August 1998) and MacAulay et al (U.S. Patent Application Publication No. 2003/0002040, filed 6 June 2001).

Regarding Claims 1, 2, 6 and 9, Garner teaches a method of synthesizing an array of oligomer comprising illuminating synthesis areas using light directed to the areas by a micromirror array to photolithographic synthesis of the oligomers (Column 4, lines 36-65 and Column 5, lines 37-50). Garner further teaches illumination during a protection group deprotection whereby light directed to an area deprotects (removes) protecting groups wherein it is further taught that exposure time and illumination intensity are related (Column 8, line

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56-Column 9, line 9). Garner does not teach that the illuminations is evaluated mathematically and adjusted to correct non-uniformity across the area.

MacAulay et al teach a method of illumination quality control comprising illuminating at least two areas with a micromirror, measuring the intensity of illumination intensity at least two positions, evaluating the difference between the intensities and adjusting the illumination intensity by adjusting the time of illumination to thereby provide uniform intensity across the array (¶ 101-102).

Baker et al teach a method of quality control for photolithography comprising measuring illumination intensity of at least two different positions in the illumination area, evaluating mathematically the a difference in illumination intensity and adjusting the illumination intensity of light directed to a brighter position to match that of a less bright position (Column 6, lines 11-25 and Column 7, line 35-Column 8, line 30) wherein “a variety of characteristics” are adjustable to provide the desired illumination uniformity (Column 6, lines 26-28). Baker et al further teach the need exists for obtaining and maintaining uniformity of illumination intensity during photolithography because non-uniformity results in non-uniform synthesis (Column 2, lines 1-34).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to combine the teachings of Garner, Baker and MacAulay to obtain the claimed invention. Garner teaches oligomer photosynthesis using micromirror illumination provides a low cost and efficient method of surface patterning without masks (Column 1, line 64-Column 2, line 6). MacAulay et al teach adjusting the time of illumination from micromirrors to provide more uniform illumination across an array (¶ 101-102). Baker et al teach the known problem of non-uniform illumination exists and suggests various characteristics be varied to provide uniform illumination (Column 6, lines 11-25 and Column 7, line 35-Column 8, line 30). Taken together, one of ordinary skill in the art would have been motivated to measure and adjust the illumination intensity at synthesis positions and

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repeatedly at each position by reducing the time of illumination to thereby correct non-uniform illumination based on the problems associated with non-uniform illumination taught by Baker et al and for the expected benefit of providing more accurate devices (Baker et al, Column 2, lines 1-34).

Response to Arguments

7. Applicant asserts that McGall and Baker do not teach the newly claimed varying the time during which each micromirror directs light to a synthesis area making use of a computer-controlled micromirror array and individually adjustable and controllable micromirrors. Applicant's comments have been considered but are deemed moot in view of the amendments (e.g. micromirrors and micromirror array) and withdrawn rejections. It is noted that the claims do not recite limitation of computer-controlled micromirror array and individually adjustable and controllable micromirrors. However, the addition of such limitations would not overcome the prior art because Garner specifically teaches computer controlled illumination (Abstract).

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Conclusion

9. No claim is allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


BJ Forman, Ph.D.
Primary Examiner
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June 3, 2004